Security Board

BNX-H61

Always at the forefront of innovation

User Manual

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FCC and DOC Statement on Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio TV technician for help.

Notice:

1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
2. Shielded interface cables must be used in order to comply with the emission limits.

Warranty

1. Warranty does not cover damages or failures that are raised from misuse of the product, inability to use the product, unauthorized replacement or alteration of components and product specifications.
2. The warranty is void if the product has been subject to physical abuse, improper installation, modification, accidents or unauthorized repair of the product.
3. Unless otherwise instructed in this user's manual, the user may not, under any circumstances, attempt to perform service, adjustments or repairs on the product, whether in or out of warranty. It must be returned to the purchase point, factory or authorized service agency for all such work.
4. We will not be liable for any indirect, special, incidental or consequential damages to the product that has been modified or altered.

Static Electricity Precautions

It is quite easy to inadvertently damage your PC, system board, components or devices even before installing them in your system unit. Static electrical discharge can damage computer components without causing any signs of physical damage. You must take extra care in handling them to ensure against electrostatic build-up.

1. To prevent electrostatic build-up, leave the system board in its anti-static bag until you are ready to install it.
2. Wear an antistatic wrist strap.
3. Do all preparation work on a static-free surface.
4. Hold the device only by its edges. Be careful not to touch any of the components, contacts or connections.
5. Avoid touching the pins or contacts on all modules and connectors. Hold modules or connectors by their ends.

Important:

Electrostatic discharge (ESD) can damage your processor, disk drive and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.

Safety Measures

To avoid damage to the system:
• Use the correct AC input voltage range.

To reduce the risk of electric shock:
• Unplug the power cord before removing the system chassis cover for installation or servicing. After installation or servicing, cover the system chassis before plugging the power cord.

Battery:
• Danger of explosion if battery incorrectly replaced.
• Replace only with the same or equivalent type recommend by the manufacturer.
• Dispose of used batteries according to local ordinance.

Before Using the System

Before using the system, prepare basic system components.

If the system comes as a barebone; that is, none of the key components, including processor, memory, and hard drive has been pre-installed as part of your purchase, you will need to at least ensure a compatible counterpart is located and installed.

You will also need a few external system peripherals intended for the use of the system, a common pool with at least a keyboard, a mouse, and a monitor is thus suggested.

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Chapter 1

General Information

1.1 Main Feature

Network Security Board

BNX-H61 is a Network Security Board, featuring on Intel® H61 chipset, supports Intel® Gen-2/3 LGA1155 Celeron®, Pentium®, Core®-i3/i5/i7 processors that carry the built-in Intel® HD Graphic engine. Below is a brief list of available processors as a quick reference:

- Celeron® Processor: G540/G1620
- Pentium® Processor: G850/G2120
- Core®-i3 Processor: i3-2120/i3-3220
- Core®-i5 Processor: i5-2400/i5-3550S
- Core®-i7 Processor: i7-2600/i7-3770

8GB Memory for 64bit OS

The two Dual Channel DDR3 DIMM slots are designed to carry up to 16GB DDR3 1066/1333/1600MHz SDRAM with Non-ECC support, ideally facilitating applications that demand total memory capacity for the use of 64bit OS, beyond the 4GB barrier inherent in the 32bit OS.

Onboard/Module Gigabit LAN Ports

The six onboard Intel® PCIe Gigabit 82583V LAN Controllers deliver outstanding network performance with 2-pair dual-latch bypass functions that are configurable through BIOS setting or software programming and are under visual monitoring via the LED indications at front panel. Yes further access to full status is also available via software programming. One expansion slot is designed to make the unit expandable up to additional 4-port copper (RJ45) Gigabit ports or 4-port fiber (SFP) Gigabit ports, both on Intel® 82580EB chip, maximizing the system up to a total 10-port Gigabit Ports, only within a 1U rack mount enclosure. Below is a list of all available LAN modules:

- 4-Port RJ45 Gigabit LAN Module on Intel® 82580EB
- 4-Port SFP Gigabit LAN Module on Intel® 82580EB

List of Key Features

- Intel® H61 Chipset
- Intel® LGA1155 Gen-2/3 Desktop Celeron®, Pentium®, Core®-i3/i5/i7 Processor
- Two DDR3 RAM Slots up to 16GB
- Three SATA3 Ports
- One CompactFlash Socket
- Two USB 2.0 Ports at front
- Six Intel® Gigabit LAN Ports at front
- One RJ45 Console Port at front
- One Expansion Slot for up to additional 4-Port Gigabit LAN Module

1.2 Specifications

Core Engine	Chipset	Intel® H61 PCH
	Processor	Support Intel® Gen-2/3 Core i3, i5, i7, Pentium®, Celeron® Processor Single LGA1155 Processor Socket
	Memory	2x DDR3 1066/1333 DIMM Slots, up to 16GB
	Display	CPU Integrated
Ethernet	Controller	Onboard 6x Intel® 82583V, 2-Pair Bypass Function
	LAN Module	Support 1x PCIe X4 Slot for LAN Module
Storage	SATA	3x SATA2
	CF	1x CompactFlash Socket
Front I/O	LAN	6x RJ45 1G Ports
	Console	1x RJ45 Type Console Port
	USB	2x USB 2.0 Ports
Internal I/O	VGA	1x Internal DB15 VGA Connector
	COM	1x COM2 Pin Header
	LED	12x LAN LED Pin Header, 2x ByPass LED Pin Header
	GPIO	16x GPIO Pin Header
	USB	2x USB 2.0 Ports
Other	H/W Monitoring	Monitor temperature, voltage, and fan speed, auto-throttling control at CPU overheat
Environment	Operating Temp.	0ºC ~ 60ºC
	Storage Temp.	-20ºC ~ 70ºC
	Humidity	10% ~ 90% (Non-Condensing)
Mechanical	Dimension	236.34mm (W) x 243.84mm (D) x 1.6mm (H)

1.3 Optional LAN Modules

BEM-C600-580-C4	Type	LAN Module
	Chipset	Intel® 82580EB
	Interface	PCIe X4
	Network Port	Four RJ45 Gigabit
	Bypass	1-Pair
BEM-C600-580-F4	Type	LAN Module
	Chipset	Intel® 82580EB
	Interface	PCIe X4
	Network Port	Four SFP Fiber Gigabit

1.4 Board Layout

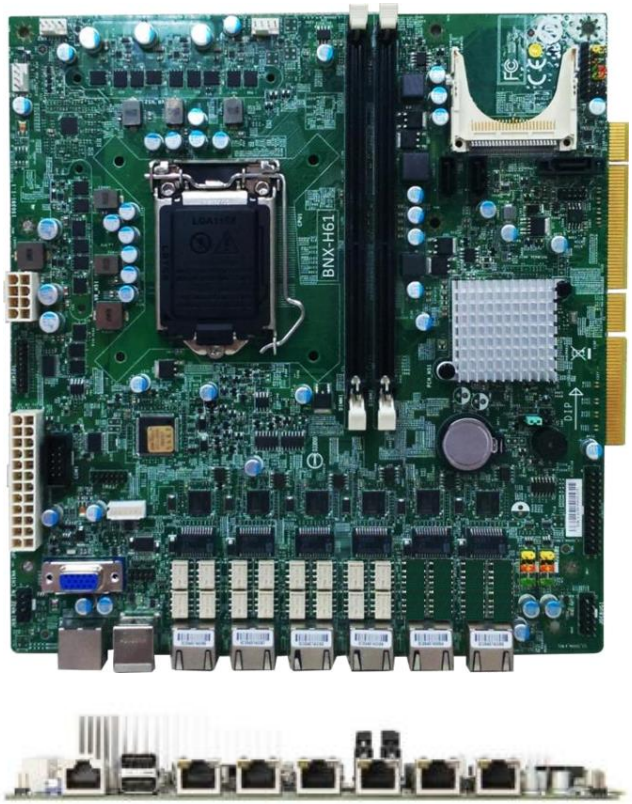


Figure 1.1: Board Layout of BNX-H61

Chapter 2

Preparation

2.1 Before You Begin

A stable and clean working environment are essential. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.
Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

- A Philips screwdriver
- A flat-tipped screwdriver
- A set of jewelers Screwdrivers
- A grounding strap
- An anti-static pad

Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environment tend to have less static electricity than dry environments. A grounding strap is warranted whenever danger of static electricity exists.

2.2 Precautions

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on the computers that are still connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to your computer or yourself:

- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Never touch the components on the board unless it is necessary to do so. Do not flex or stress the circuit board.
- Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.
- Use correct screws and do not over tighten screws.

2.3 Setting Jumpers

A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is SHORT. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is OPEN. Please see the following illustrations

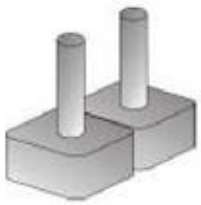
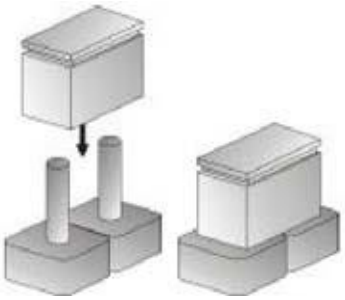
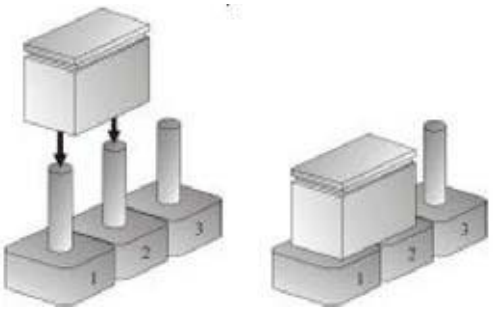
<table>
<tr><td rowspan="2">The illustrations on the right show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is SHORT. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is OPEN.</td><td>  </td><td>  </td></tr>
<tr><td>Open (Off)</td><td>Short (On)</td></tr>
<tr><td>These illustrations show a 3-pin jumper. Pins 1 and 2 are SHORT.</td><td colspan="2">  </td></tr>
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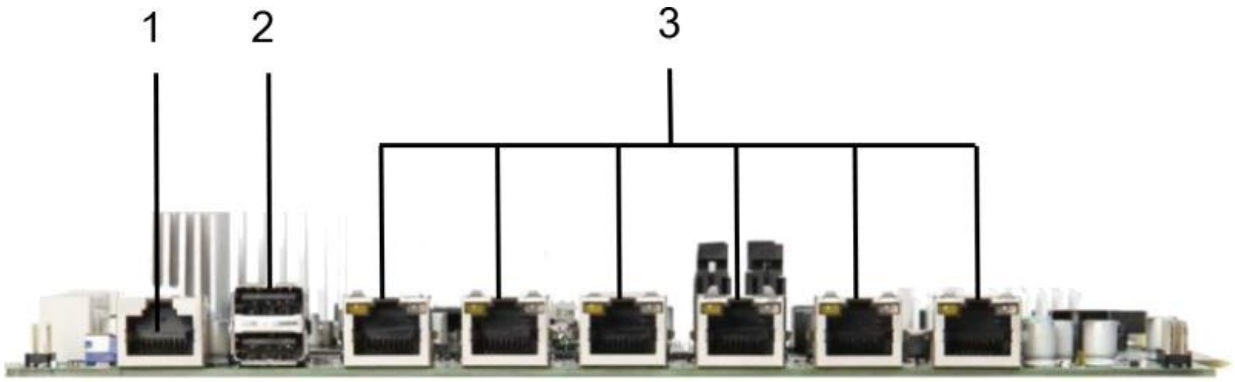
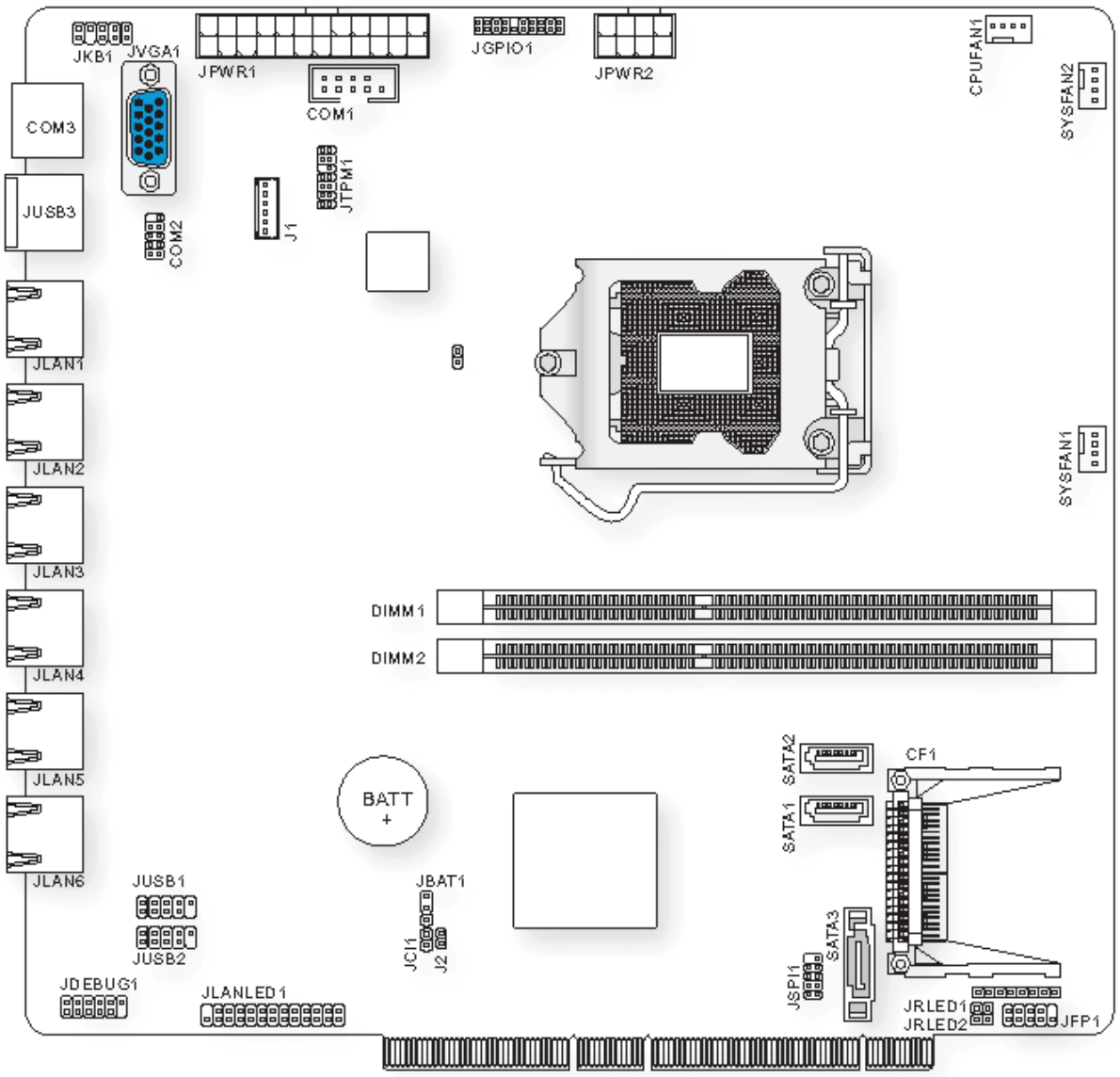
Table 2-1: Setting Jumpers

2.4 Edge Connectors



1. RJ45 Console Port
2. Dual USB 2.0 Ports
3. Six RJ45 Gigabit LAN Ports

2.5 Locations Of Jumpers and Connectors



1	Clear CMOS Jumper JBAT1
2	ME Jumper J2
3	24-pin ATX Power Connector
4	8-pin 12V Power Connector
5	CPU Fan / System Fan
6	Front Panel Connector
7	SATA1 / SATA2 Connector
8	SATA3 SATADOM Connector
9	VGA Connector
10	COM1 / COM2 Connector
11	USB1 / USB2 Connector
12	Chassis Intrusion Connector
13	GPIO Pin Connector
14	CPLD Connector
15	TPM Connector
16	Bypass LED
17	LAN LED
18	Keyboard / Mouse Connector

2.6 Jumpers

► Clear CMOS Jumper (JBAT1)

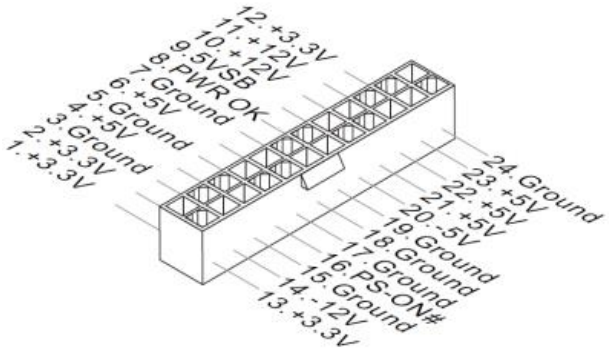
Pin	Definition
1-2	Normal Operation (default)
2-3	Clear CMOS

► ME Jumper (J2)

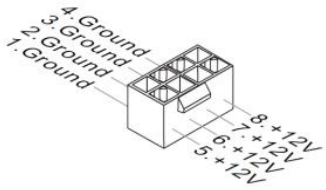
Pin	Definition
Open	Enabled
Short	Disabled

2.7 Internal Connectors

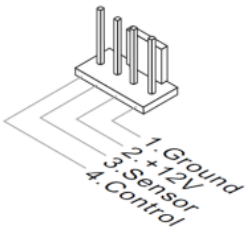
24-pin ATX Power Connector



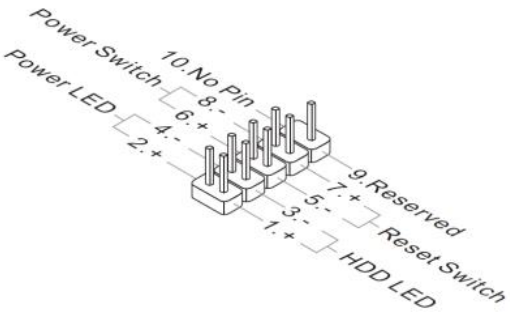
8-pin 12V Power Connector



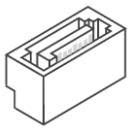
Fan Connector



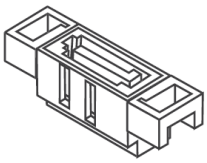
Front Panel Connector



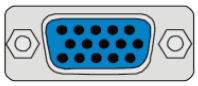
SATA Connector



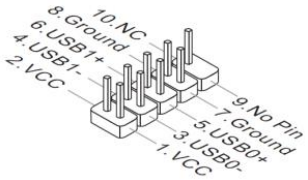
SATADOM Connector



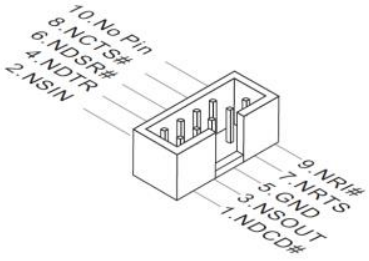
VGA Connector



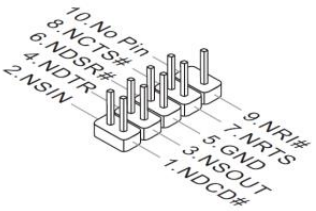
USB Connector



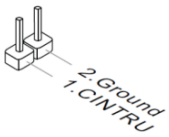
COM1 Connector



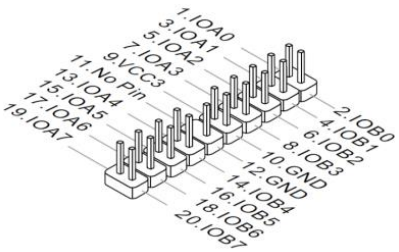
COM2 Connector



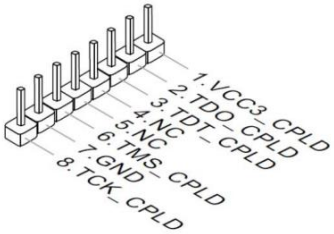
Chassis Intrusion



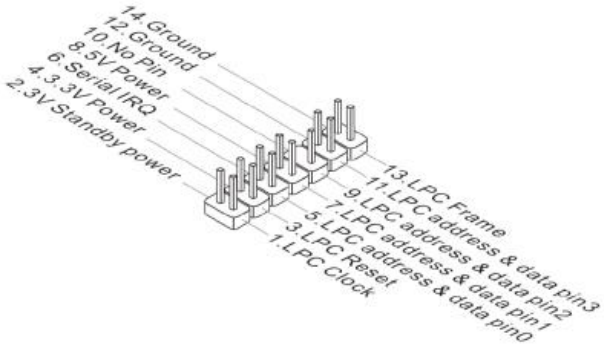
GPIO Pin Connector



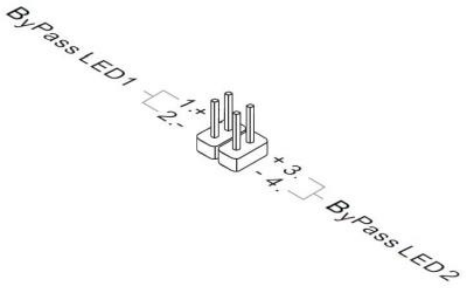
CPLD Connector



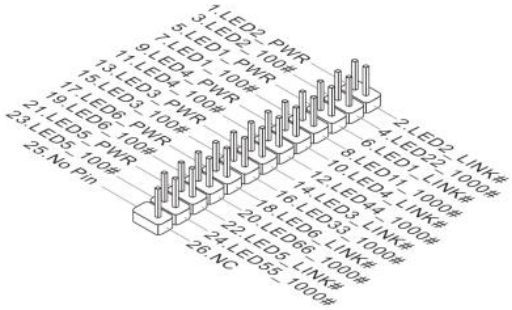
TPM Connector



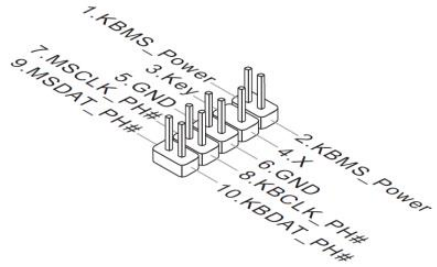
Bypass LED



LAN LED



Keyboard/Mouse Connector



Chapter 3

Operation

3.1 System Memory

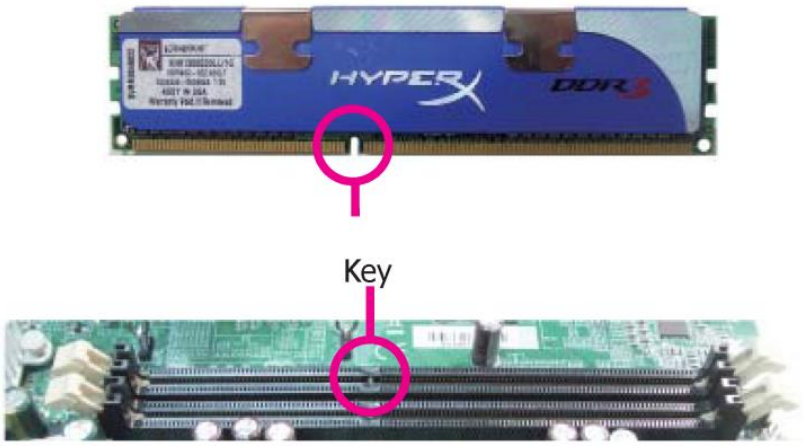
BNX-H61 has Intel® H61 chipset built-in, and supports dual channel non-ECC, un-buffered DDR3-1066/1333/1600MHz memory modules. Two DIMM slots support up to 16GB Memory Capacity.

3.2 Installing Memory

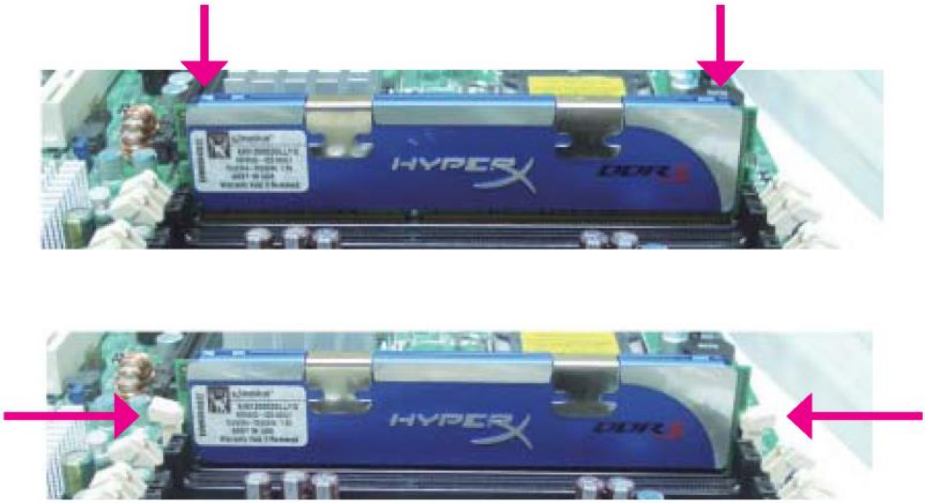
To install Memory

1. Open up the two side tabs on the slot.

2. Make sure the “Key” on Memory module and socket are perfectly matched, and add slowly the RAM module into the socket along the plastic guides at both ends.



3. Make sure the Memory modules are perfectly snapped by the socket, and the two tabs are restored back to “close” position automatically. If not, press the tabs to “close” position.



4. To remove the Memory modules, please push the tabs outwards, and the memory modules will be automatically disengaged.

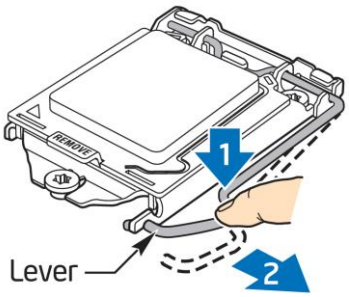
3.3 Installing LGA1155 Intel® Core-i CPU, Heatsink, and Fan

BNX-H61 supports Intel® LGA1155 Gen-2/3 Core-i Processor. For a reference list of supported processor, please refer to the specification section. The socket 1155 is formed up with sensitive arrays of pins, improper or careless installation may cause permanent harm to the socket pins. In some cases users may accidentally damage the socket simply by adjusting the position of the CPU.

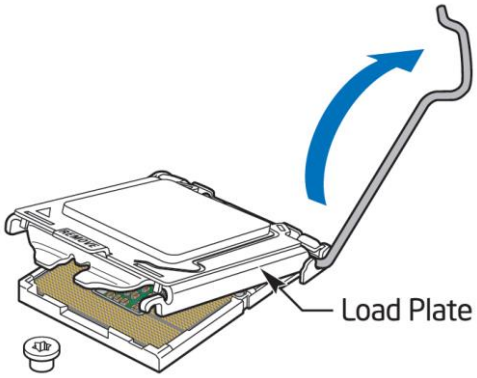
Please follow the installation instructions as shown below:

Step (A): Opening the Socket

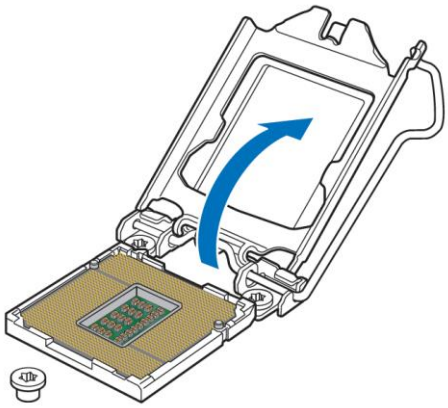
1. Push the "Socket Lever" down and away from the socket to release it.



2. Rotate the "Socket Lever" to lift the "Load Plate" away from the socket.



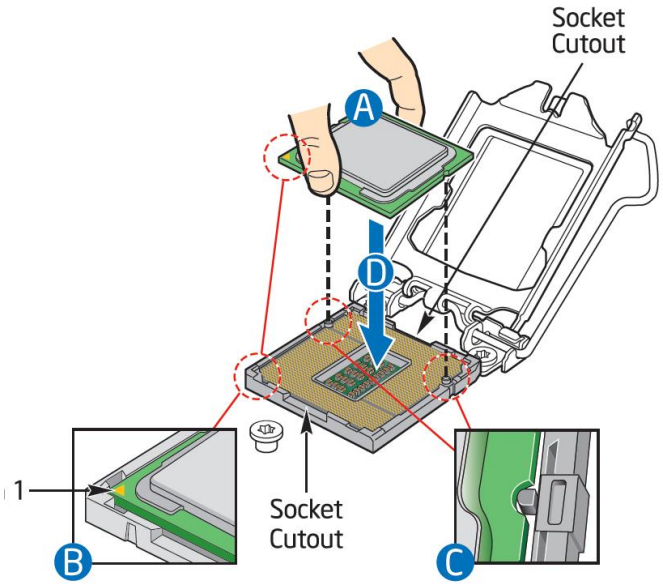
3. Make sure the "Load Plate" is in the fully open position, and also remove the socket cover.



4. When opening the socket, DO NOT TOUCH the gold socket contacts.

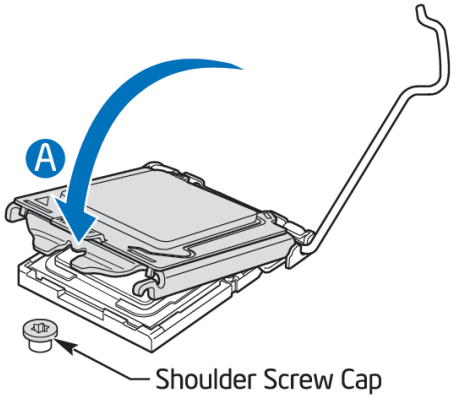
Step (B): Install the Processor

1. Hold the processor with your thumb and index finger as shown to align your fingers with the socket cutouts.
2. Make sure that the processor Pin#1 indicator (gold triangle) is aligned with the Pin#1 chamfer on the socket.
3. Make sure that the notches on the processor align with the posts on the socket.
4. Lower the processor straight down without tilting or sliding it in the socket.

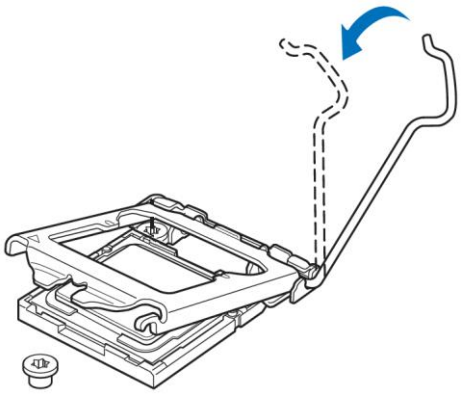


Step (C): Close the Load Plate

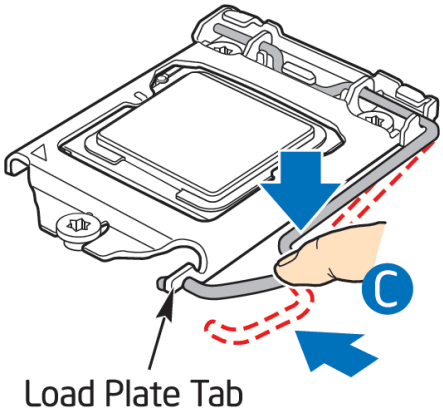
1. Carefully lower the "Load Plate" and make sure it slides under the shoulder screw cap as the lever is lowered.



2. Continue to low the lever.



3. Latch the socket lever under the load plate tab.



Step (D): Install a Heatsink

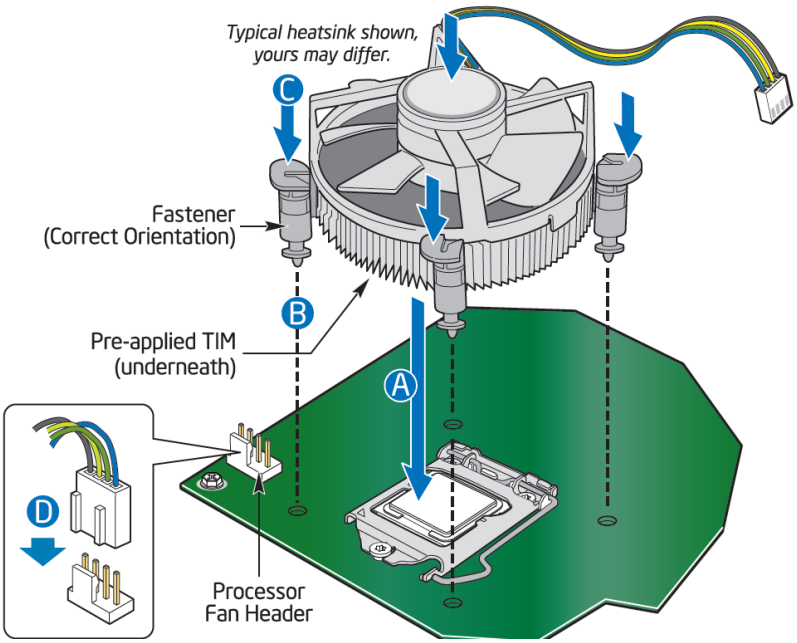
Note: Heatsinks that come with boxed Intel® processors use pre-applied Thermal Interface Material (TIM) and do not need thermal grease. If a different heatsink is used, please refer to manufacturer's instructions.

1. Place the heatsink onto the processor socket. Ensure that the fan power cable is on the side closet to the processor fan header.

2. Align the fasteners with the corresponding board holes (four of them). Ensure that the fasteners slots are pointing perpendicular to the heatsink.

3. While pressing down on the heatsink, press down on the top of the fasteners with your thumb to lock into place. Ensure that all four fasteners are secured.

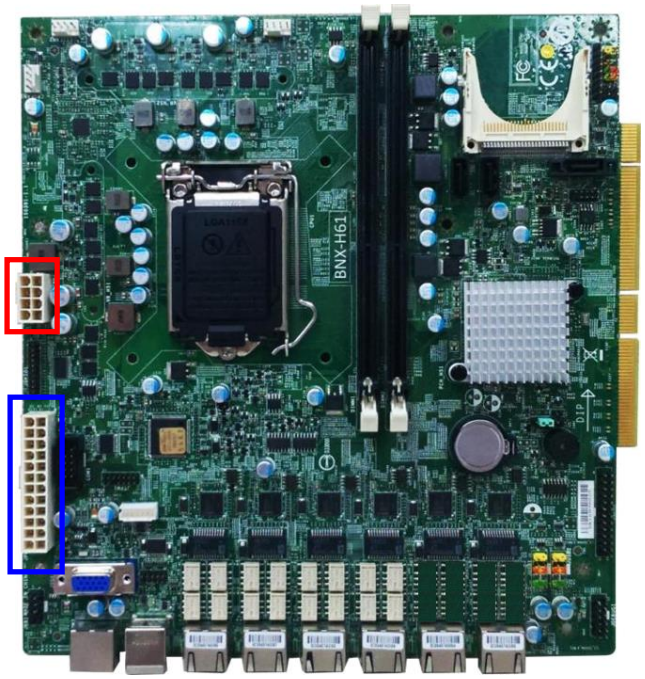
4. Connect the heatsink fan power cable to the processor fan header.



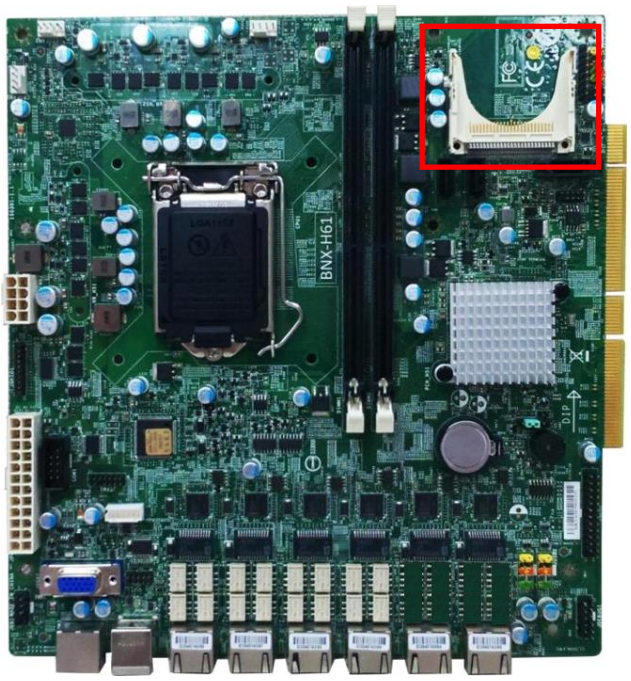
3.4 Adding Power Connectors

BNX-H61 motherboard requires correct power plan to properly support Intel® LGA1155 Gen-2/3 Core-i Processor. Please add the 24-pin ATX Power Connector on the blue connector, and 8-pin 12Vdc Power Connector on the red connector. In case your power supply does not come with 8-pin 12Vdc Power Connector, please at least add the 4-pin 12Vdc Power Connector onto it.

In case the 12Vdc Power Connector is not added, power supply will be triggered, but the motherboard would not boot at all. Please shutdown the system, and add the 12Vdc Power Connector back on.



3.5 Add CompactFlash Card



- Please do not add CFast card onto this socket.
- Make sure to shut down the system board before adding your CompactFlash card.

Chapter 4

BIOS Setup

About the BIOS

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor your system to suit your individual work needs. It is a ROM-based configuration utility that displays the system's configuration status and provides you with a tool to set system parameters. These parameters are stored in non-volatile battery-backed-up CMOS RAM that saves this information even when the power is turned off. When the system is turned back on, the system is configured with the values stored in CMOS.

With easy-to-use pull down menus, you can configure such items as:

- Hard drives, diskette drives, and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power management features

When to Run BIOS

This program should be executed under the following conditions:

- When changing the system configurations.
- When a configuration error is detected by the system and you are prompted to make changes to the Setup program.
- When resetting the system clock.
- When setting the CPU clock speed so that it automatically runs either fast or slow.
- When redefining the communication ports to prevent any conflicts.
- When making changes to the Power Management configuration.
- When changing the password or making other changes to the security setup.

Normally, CMOS setup is needed when the system hardware is not consistent with the information contained in the CMOS RAM, whenever the CMOS RAM loses power, or when the system features need to be changed.

When to Update BIOS

In the event that new features are released and a BIOS update is required, you will need to update your BIOS on your own, with the help of an appropriate guide, a reference tool, and some command files for the job.

Please seek for help from your local dealer, or send your request to our technical support department.

4.1 Entering Setup

When the system is powered on, the BIOS will initiate the Power-On-Self-Test (POST) routines. These routines perform various diagnostic checks. If an error is encountered, the error will be reported in one of two different ways:

- If the error occurs before the display device is initialized, a series of beeps will be transmitted.
- If the error occurs after the display device is initialized, the screen will display the error message.

Powering on the computer and immediately pressing <**Del**> allows you to enter Setup. Another way to enter Setup is to power on the computer and wait for the following message during the POST:

TO ENTER SETUP BEFORE BOOT
PRESS <CTRL-ALT-ESC> OR <DEL> KEY

Press the <**Del**> key or press the <**Ctrl**>, <**Alt**>, and <**Esc**> keys to enter Setup.

4.2 Getting Help

The online description of the highlighted setup item is displayed at the right pane of the menu at all time. Press F1 to pop up a small help window that lists all the function keys and its use.

To exit the Help Window, press **<F1>** or **<Esc>.**

4.3 Control Keys

The table below lists all the function keys for the navigation in the BIOS setup menu.

Function Key	**Description**
Up/Down Arrow Key	Move Up/Down
Left/Right Arrow Key	Move Left/Right
Enter Key	Select
+/- Key	Change value
ESC	Exit
Tab	Select a Field
F1	General Help
F10	Save & Exit

To exit the Help Window, press **<F1>** or **<Esc>.**

4.4 The Main Menu

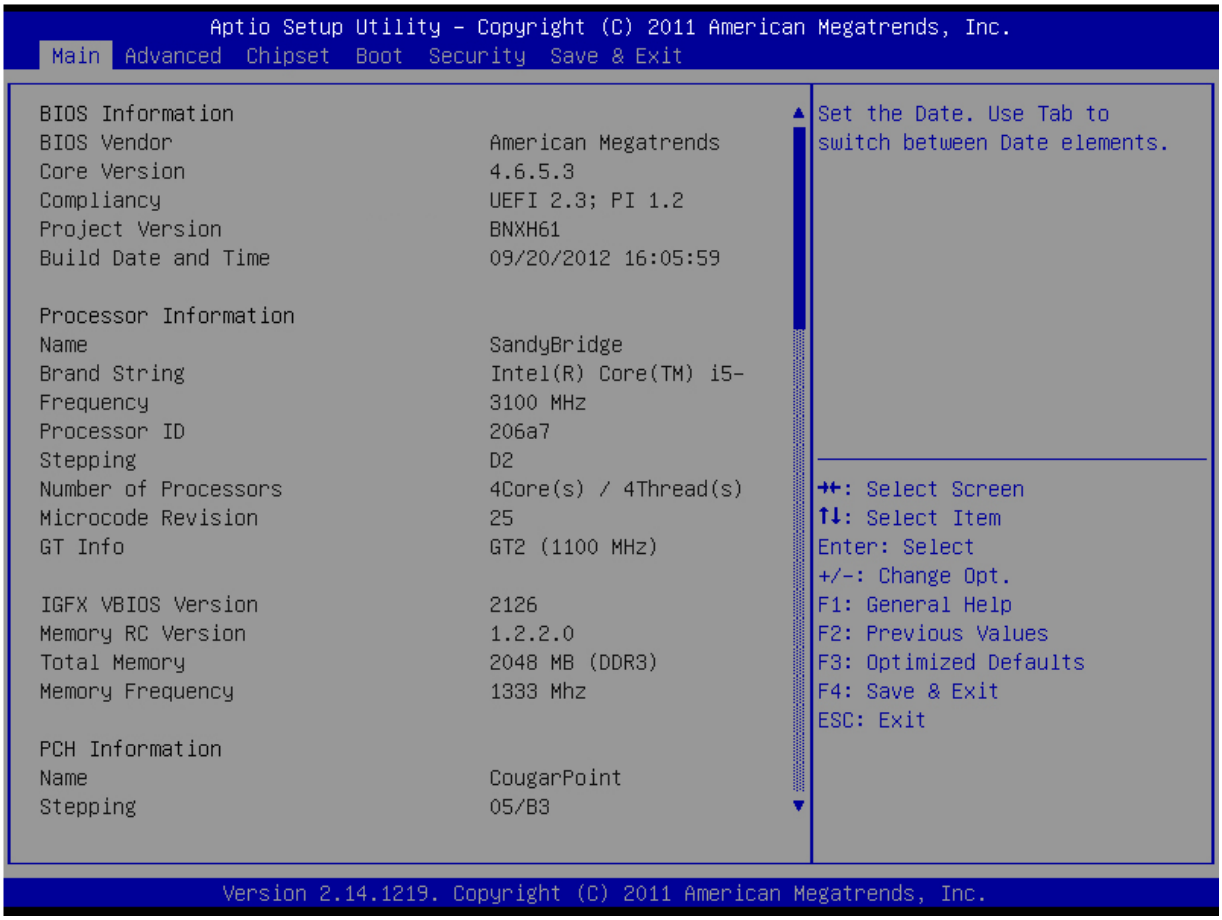

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
BIOS Information
BIOS Vendor American Megatrends
Core Version 4.6.5.3
Compliancy UEFI 2.3; PI 1.2
Project Version BNXH61
Build Date and Time 09/20/2012 16:05:59
Processor Information
Name SandyBridge
Brand String Intel(R) Core(TM) i5-
Frequency 3100 MHz
Processor ID 206a7
Stepping D2
Number of Processors 4Core(s) / 4Thread(s)
Microcode Revision 25
GT Info GT2 (1100 MHz)
IGFX VBIOS Version 2126
Memory RC Version 1.2.2.0
Total Memory 2048 MB (DDR3)
Memory Frequency 1333 Mhz
PCH Information
Name CougarPoint
Stepping 05/B3
Set the Date. Use Tab to switch between Date elements.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

Figure 4-1: BIOS Setup Utility Main Menu

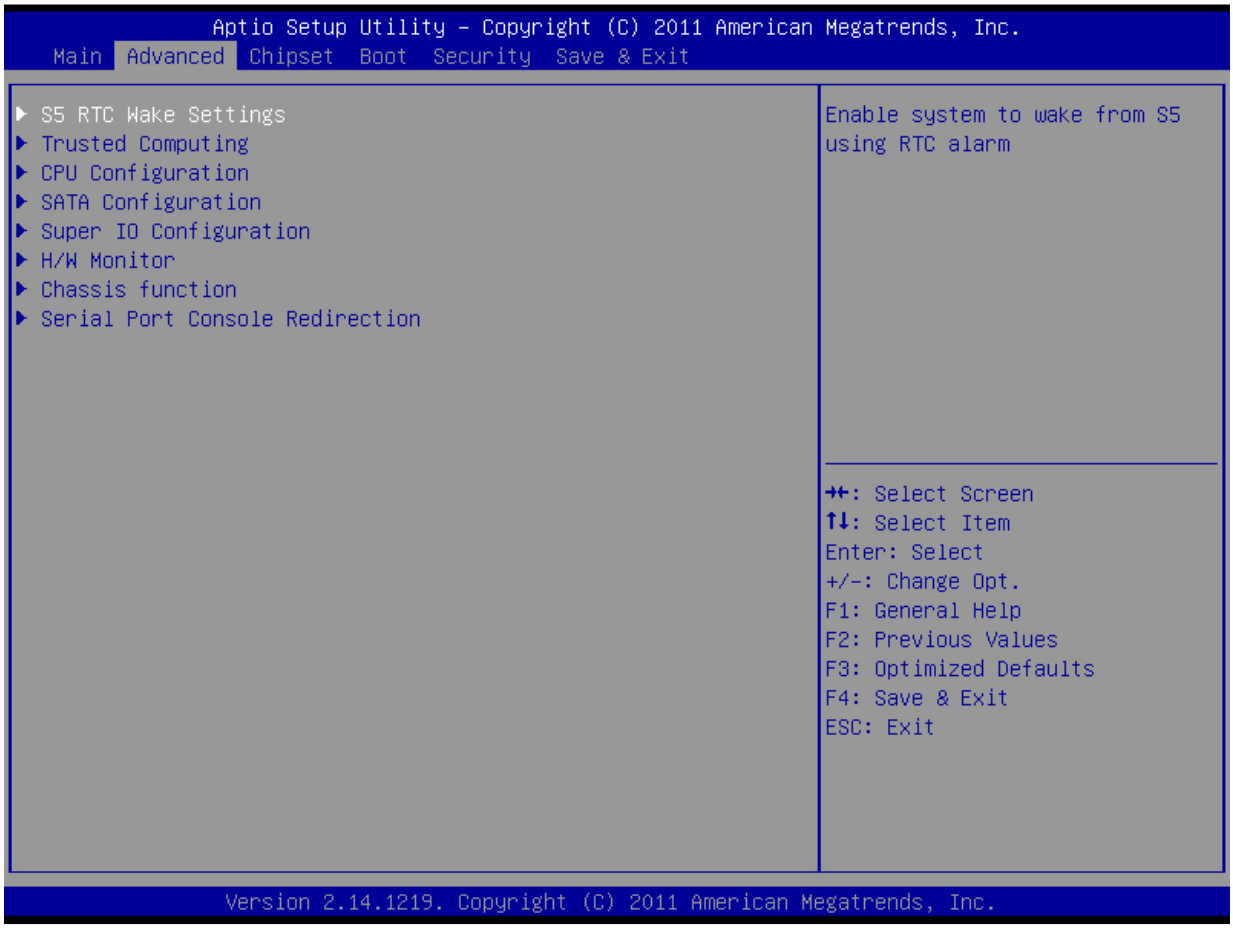
The menu bar on the top of the first screen has the following submenus:

- **Main:** Basic system configuration.
- **Advanced:** Advanced system settings.
- **Chipset:** Other functions.
- **Boot:** System boot configuration.
- **Security:** Configure Supervisor and User Password
- **Save & Exit:** Exit options as well as loading optimal defaults

System Time [xx:xx:xx]: Set the system time.
System Date [Day xx/xx/xxxx]: Set the system date.

4.5 The Advanced Menu

In this section, you may set the configurations for the following items: RTC Wake Settings, Trusted Computing, CPU Configuration, SATA Configuration, Super IO Configuration, H/W Monitor, Chassis Function, and Serial Port Console Redirection.



S5 RTC Wake Settings

Resume On RTC Alarm

When [Enabled], you can set the date and time at which the RTC (real-time clock) alarm wakes up the system from suspend mode.

Trusted Computing

TPM Support

This setting controls the Trusted Platform Module (TPM) designed by the Trusted Computing Group (TCG). TPMs are special-purpose integrated circuits (ICs) built into a variety of platforms to enable strong user authentication and machine attestation -- essential to prevent inappropriate access to confidential and sensitive information and to protect against compromised networks.

TPM State

This setting indicates the TPM state.

Pending TPM Operation

This function is used to select a TPM command to be issued during the next boot.

CPU Configuration

CPU Configuration

This menu shows the CPU information. Read only.

Limit CPUID Maximum

It is designed to limit the listed speed of the processor to older operating systems.

Execute Disable Bit

It can prevent certain classes of malicious “buffer overflow” attacks where worms can try to execute code to damage your system. It is recommended you keep this enabled always.

SATA Configuration

SATA Mode Selection

Select a proper SATA mode from IDE or AHCI mode.

Super IO Configuration

Serial Port 0/1 Configuration

Serial Port

This setting enables/disables the specified serial port.

Device Settings

This setting shows the address & IRQ settings of the specified serial port.

PC Health Status

These items display the current status of all of the monitored hardware devices/components such as CPU voltage, temperatures and all fans' speeds.

Chassis Intrusion

This setting enables/disables the feature of recording the chassis intrusion status and issuing a warning message if the chassis is once opened. To clear the warning message, set the field to [Reset]. The setting of the field will automatically return to [Enable] later.

Serial Port Console Redirection

Console Redirection

Enables or disables Console Redirection function of each Serial Port.

Console Redirection Settings

Terminal Type

To operate the system's console redirection, you need a terminal supporting ANSI terminal protocol and a RS-232 null modem cable connected between the host system and terminal(s). This setting specifies the type of terminal device for console redirection.

Bits per second, Data Bits, Parity, Stop Bits

This setting specifies the transfer rate (bits per second, data bits, parity, stop bits) of Console Redirection.

Flow Control

Flow control is the process of managing the rate of data transmission between two nodes. It's the process of adjusting the flow of data from one device to another to ensure that the receiving device can handle all of the incoming data. This is particularly important where the sending device is capable of sending data much faster than the receiving device can receive it.

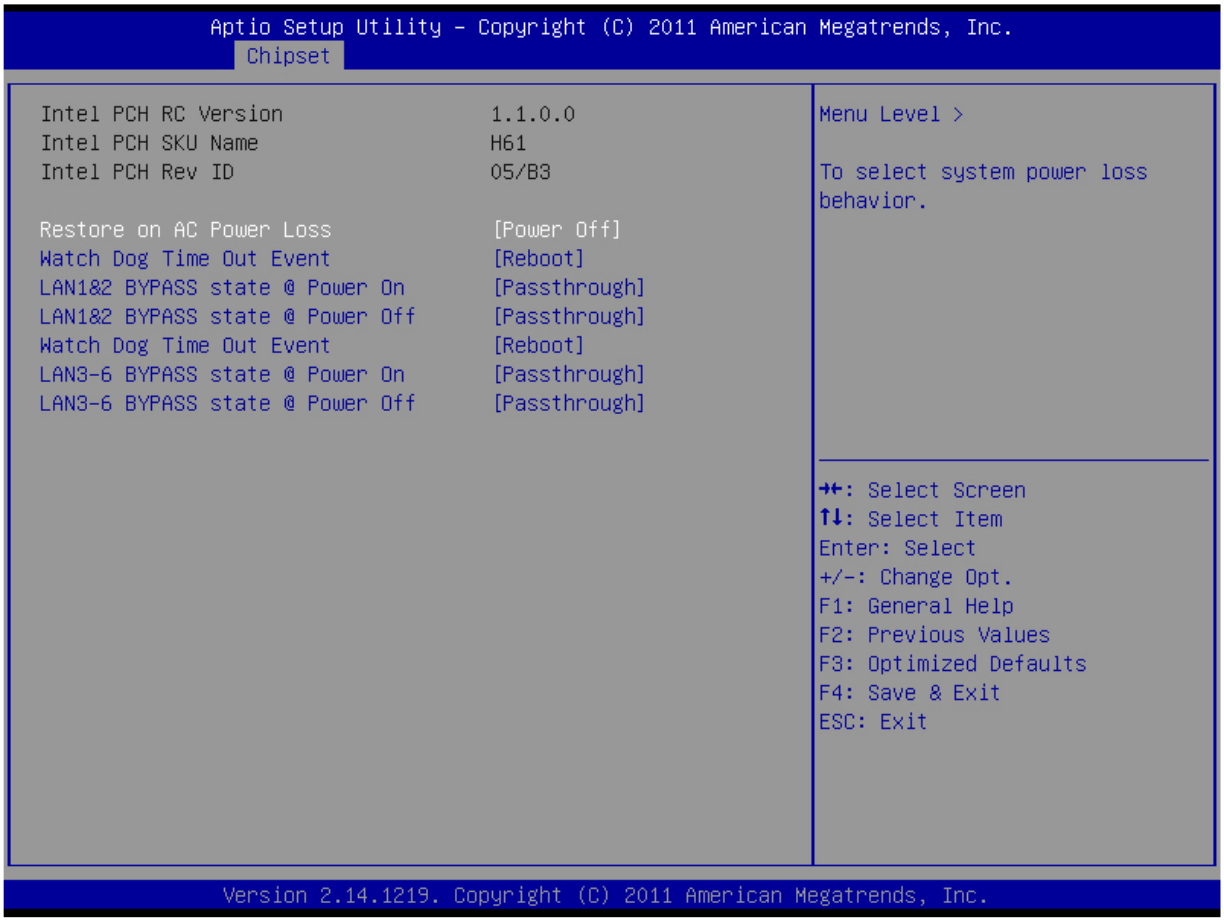
Recorder Mode, Resolution 100x31

These settings enable/disable the recorder mode and the resolution 100x31.

Legacy OS Redirection Resolution

This setting specifies the redirection resolution of legacy OS.

4.6 The Chipset Menu


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Chipset
Intel PCH RC Version 1.1.0.0
Intel PCH SKU Name H61
Intel PCH Rev ID 05/B3
Restore on AC Power Loss [Power Off]
Watch Dog Time Out Event [Reboot]
LAN1&2 BYPASS state @ Power On [Passthrough]
LAN1&2 BYPASS state @ Power Off [Passthrough]
Watch Dog Time Out Event [Reboot]
LAN3-6 BYPASS state @ Power On [Passthrough]
LAN3-6 BYPASS state @ Power Off [Passthrough]
Menu Level >
To select system power loss behavior.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

Intel PCH PC Version / SKU Name / Rev ID

These items show the chipset information of PCH PC Version, SKU Name and Rev ID.

Restore On AC Power Loss

This setting specifies whether your system will reboot after a power failure or interrupt occurs. Available settings are:

[Power Off] Leaves the computer in the power off state.

[Power On] Leaves the computer in the power on state.

[Last State] Restores the system to the previous status before power failure or interrupt occurred.

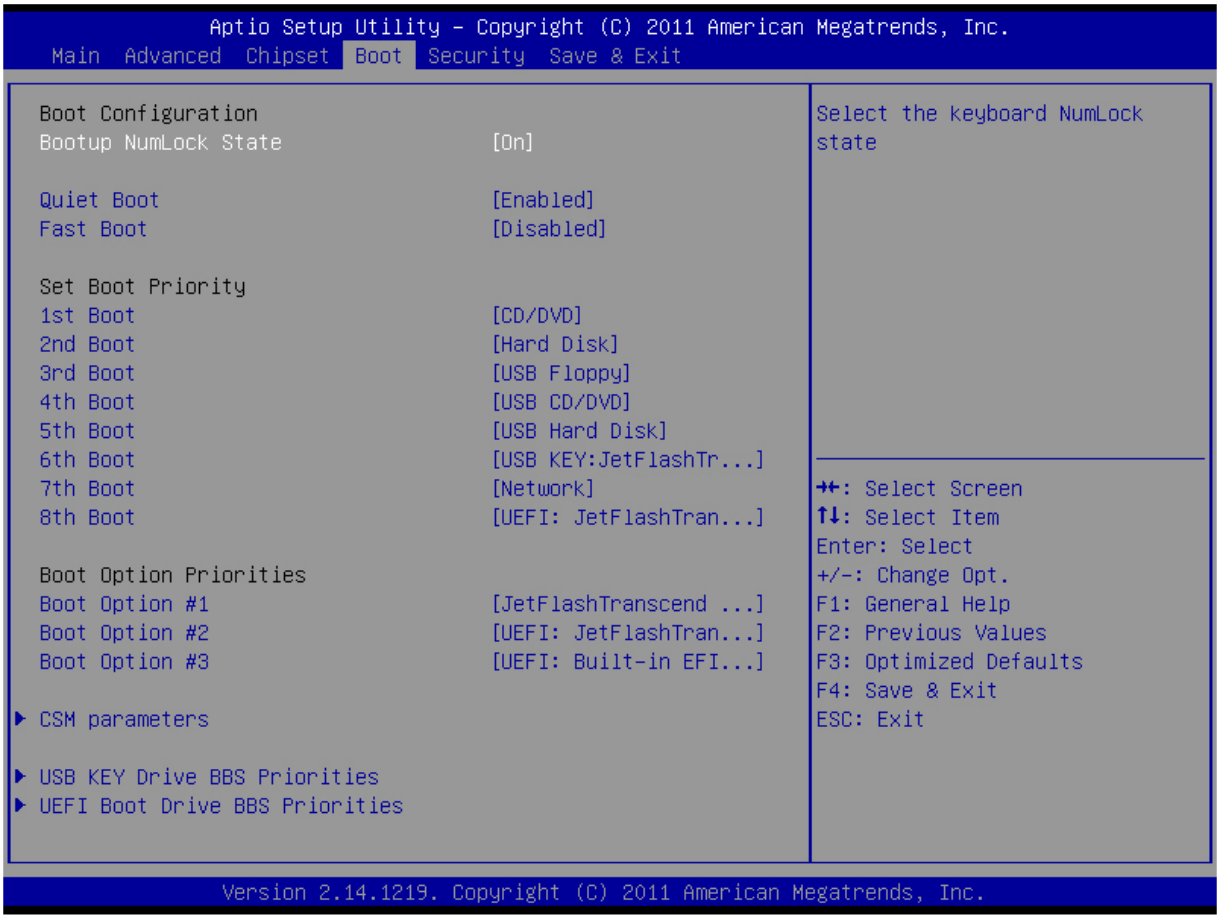
Watchdog Time Out Event

This setting controls the Watchdog Time Out event.

LAN1&2 / LAN3-6 ByPass state @ Power On / Off

LAN Bypass removes a single point of failure so that essential bus3-13ness communication can continue while a network failure is diagnosed and resolved. In the event of a power, hardware or software failure, Hardware Bypass will automatically activate, allowing network traffic to continue. Traffic between the LAN and WAN is allowed without interruption.

4.7 The Boot Menu


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Boot Configuration
Bootup NumLock State [On]
Quiet Boot [Enabled]
Fast Boot [Disabled]
Set Boot Priority
1st Boot [CD/DVD]
2nd Boot [Hard Disk]
3rd Boot [USB Floppy]
4th Boot [USB CD/DVD]
5th Boot [USB Hard Disk]
6th Boot [USB KEY:JetFlashTr...]
7th Boot [Network]
8th Boot [UEFI: JetFlashTran...]
Boot Option Priorities
Boot Option #1 [JetFlashTranscend ...]
Boot Option #2 [UEFI: JetFlashTran...]
Boot Option #3 [UEFI: Built-in EFI...]
CSM parameters
USB KEY Drive BBS Priorities
UEFI Boot Drive BBS Priorities
Select the keyboard NumLock state
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

Bootup NumLock State

This setting is to set the Num Lock status when the system is powered on. Setting to [On] will turn on the Num Lock key when the system is powered on. Setting to [Off] will allow users to use the arrow keys on the numeric keypad.

Fast Boot

This BIOS feature determines if the BIOS should hide the normal POST messages with the motherboard or system manufacturer's full-screen logo.

- When it is enabled, the BIOS will display the full-screen logo during the boot-up sequence, hiding normal POST messages.
- When it is disabled, the BIOS will display the normal POST messages, instead of the full-screen logo.

Please note that enabling this BIOS feature often adds 2-3 seconds of delay to the booting sequence. This delay ensures that the logo is displayed for a sufficient amount of time. Therefore, it is recommended that you disable this BIOS feature for a faster boot-up time.

Set Boot Priority

This setting allows users to set the sequence of boot devices where BIOS attempts to load the disk operating system.

Boot Option Priorities

The items allow you to set the sequence of boot devices where BIOS attempts to load the disk operating system. First press <Enter> to enter the sub-menu. Then you may use the arrow keys (↑↓) to select the desired device, then press <+>, <-> or <PageUp>, <PageDown> key to move it up/down in the priority list.

CSM Parameters

This setting specifies the parameters for Compatibility Support Module, a part of the Intel Platform Innovation Framework for EFI providing the capability to support legacy BIOS interfaces.

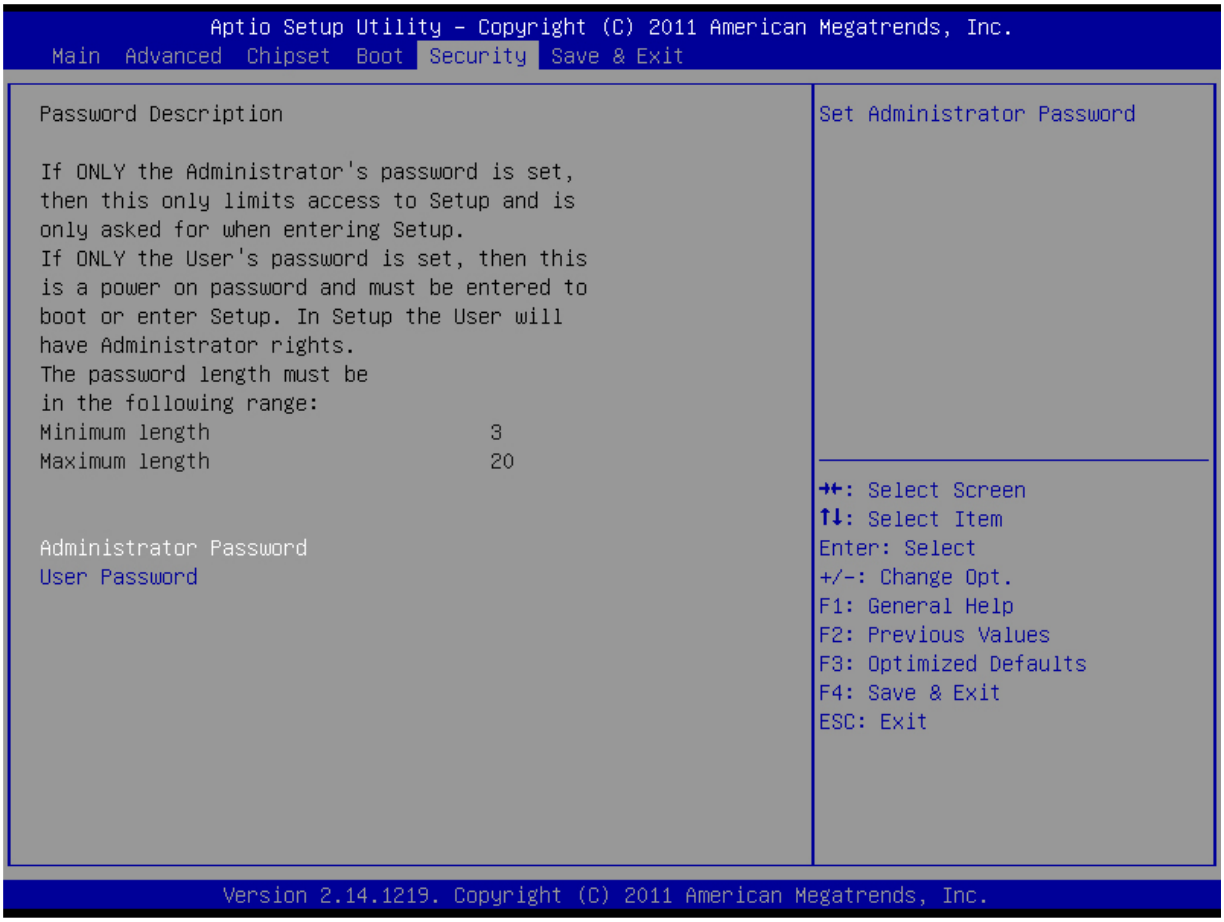
USB KEY Drive BBS Priorities

This setting allows users to set the USB key boot sequence.

UEFI Boot Drive BBS Priorities

This setting allows users to set the UEFI boot drive sequence.

4.8 The Security Menu


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Password Description
If ONLY the Administrator's password is set,
then this only limits access to Setup and is
only asked for when entering Setup.
If ONLY the User's password is set, then this
is a power on password and must be entered to
boot or enter Setup. In Setup the User will
have Administrator rights.
The password length must be
in the following range:
Minimum length 3
Maximum length 20
Administrator Password
User Password
Set Administrator Password
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

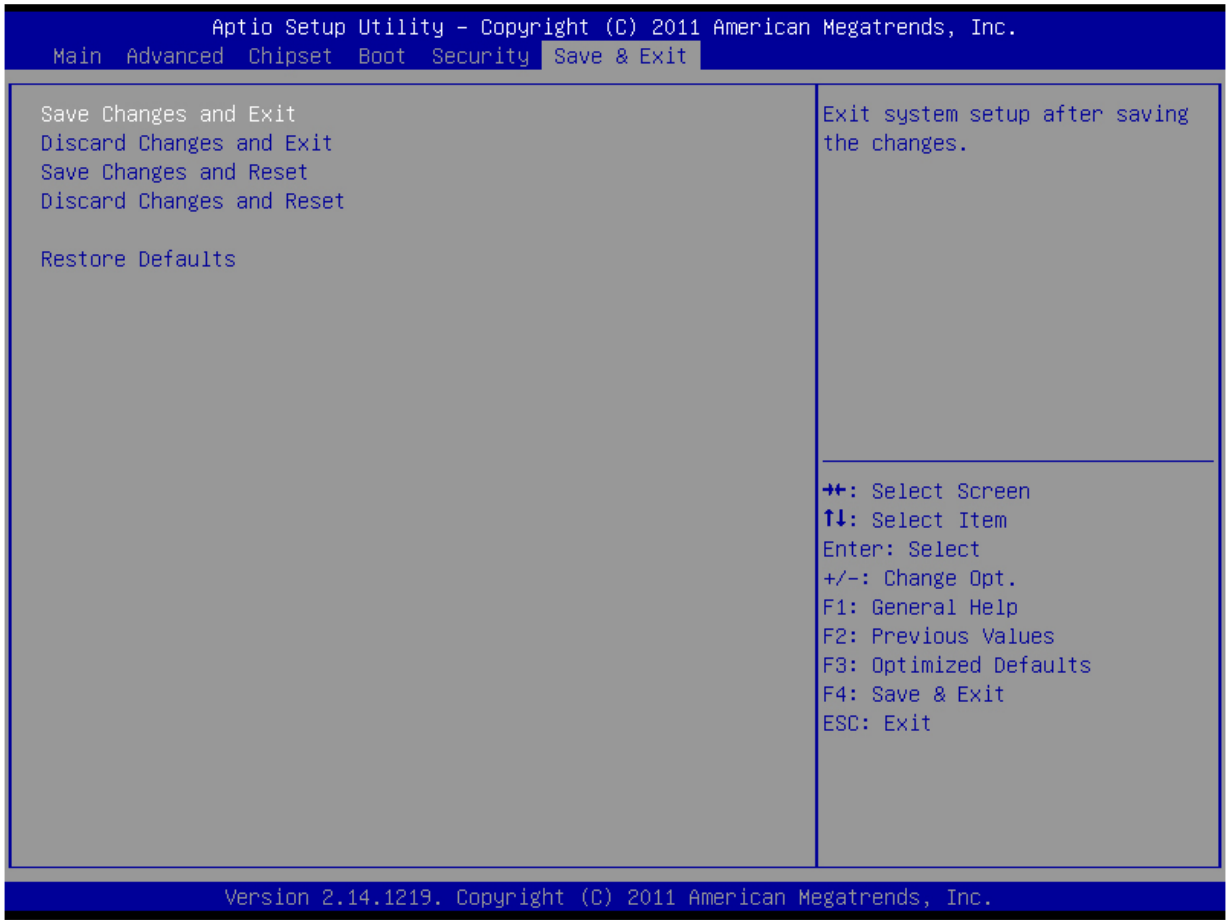
Administrator Password

Administrator Password controls access to the BIOS Setup utility. Users will be prompted for Administrator password only when they enter BIOS Setup.

User Password

User Password controls access to the system at boot and access to the BIOS Setup utility. Users will be prompted for User password when they power on the system or enter BIOS Setup. In BIOS Setup, users will have Administrator rights.

4.9 The Save & Exit Menu


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Save Changes and Exit
Discard Changes and Exit
Save Changes and Reset
Discard Changes and Reset
Restore Defaults
Exit system setup after saving the changes.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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Save Changes and Exit

Save changes to CMOS and exit.

Discard Changes and Exit

Abandon all changes and exit.

Save Changes and Reset

Save changes to CMOS and reset the system.

Discard Changes and Reset

Abandon all changes and reset the system.

Restore Defaults

Restore the preset defaults.

Chapter 5

Programming Guide

For example to compress it by executing “RU” under DOS could reference as below, and if users need to build codes for other OS environment, please consult OS distributor accordingly.

IOSpace 0x50D bit6	SB_GPIO14 (Send bit)
IOSpace 0x539 bit2	SB_GPIO42 (WDT 0:Reboot/1:Bypass)
IOSpace 0x539 bit3	SB_GPIO43 (Power Off : 0:PassTru /1:Bypass)
IOSpace 0x50D bit1	SB_GPIO9 (Power On : 0:PassTru /1:Bypass)
IOSpace 0x539 bit6	PAIR1 SB_GPIO46
IOSpace 0x539 bit5	PAIR2 SB_GPIO45
IOSpace 0x539 bit4	PAIR3 SB_GPIO44
	PAIR3..1 Ex:
	[PAIR3..1] 000 : Select LAN 1&2 Channel Control
	[PAIR3..1] 001 : Select

1. Press “Alt+C” -> Select “IO Space”-> Select “0” -> key in “500” -> press Enter
2. Select Offset “39” Bit2 set to “1” (WDT Bypass)
3. Clean Pair1~3: Select Offset “39” Bit04, 05, 06: Set “0”
4. Select Offset “0D” Bit06 set to “1” -> Bit07 set to “0” (Send bit High -> Low)
5. Select Offset “39” Bit06 set to “1”
6. Repeat setup “4”
   Enable WDT, and setup time
7. Press “Alt+C” -> Select “ISA” -> key in “4E” -> press Enter -> key in “4F”
8. Press “Ctrl+O” -> key in “o 4E 87” -> press “Enter” -> key in “o 4E 87” -> press “Enter” -> press “ESC” key
9. Press F7 to display 8bit mode -> Select Offset 07 -> set to “07”
10. Offset 30 -> set to “01”
11. Offset F0 -> set to “81”
12. Offset F6 -> set to “3C” Time of watchdog timer
13. Offset F5 -> set to “73”